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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,242	09/26/2003	Hiroyuki Ogino	03500.017604	8589

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EXAMINER	
SHAH, MANISH S	
ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/670,242

Applicant(s)

OGINO ET AL.

Examiner

Manish S. Shah

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-20 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/27/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Information Disclosure Statement

An IDS submitted on 11/26/2003 was missing the PTO 1449 form, so please resubmit the copy of PTO-1449 with next response.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 & 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al. (# EP 1231245 A1).

Lee et al. discloses an image forming process for forming an image-recorded article having a coating layer on at least a part of an image formed, which includes the steps of providing liquid composition containing a polymer, providing an image-recorded article formed on a recording medium by an ink-jet recording method, and applying the liquid composition to at least a part of an image of the recorded article to insolubilize the polymer contained in the liquid composition on the surface of the image, thereby forming the coating layer at position to which the liquid composition has been applied, wherein the recording medium has a surface which insolubilizes the polymer (page: 2, line: 40-60; page: 8, line: 45-60).

2. Claims 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Patterson et al. (# US 4732786).

Patterson et al. discloses an image forming process for forming an image – recorded article having a coating layer on the image formed (column: 6, line: 20-60), which includes a liquid composition for forming a coating layer on an image recorded article formed on recording medium by ink jet recording method, which includes an aqueous medium and a polymer (see Examples), wherein polymer is selected from polysaccharide, polymer of acrylic acid, copolymer of methacrylic acid (which has a general formula of $-\text{COOH}$) (column: 3, line: 55-68; column: 4, line: 1-25) and polyvalent metal cationic compound (column: 4, line: 39-47), providing an image recorded article formed on a recording medium having surface pH or polyvalent metal ion, which insolubilizes the polymer by an inkjet recording method (column: 3, line: 35-43; column: 2, line: 65-68; column: 3, line: 1-17; column: 4, line: 39-47) and applying the liquid composition to the image article to form the coating layer on the recorded article (see Examples). They also disclose that the recording medium has a porous ink-receiving layer and surface has a pH from 4 to 8 (column: 3, line: 36-43) and contains polyvalent metal ion (column: 4, line: 39-47):

3. Claims 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Patterson et al. (# US 4732786).

Patterson et al. discloses a liquid composition for forming a coating layer on an image recorded article formed on recording medium by ink jet recording method, which includes an aqueous medium and a polymer, wherein polymer is selected from polysaccharide, polymer of acrylic acid, copolymer of methacrylic acid (which has a general formula of $-\text{COOH}$) (column: 3, line: 55-68) column: 4, line: 1-25) and polyvalent metal cationic compound (column: 4, line: 39-47), wherein the polymer is dissolved in the aqueous medium in such state as to be insolubilized by the surface pH of the recording medium (column: 3, line: 35-43) or polyvalent metal ion contained in the recording medium (column: 2, line: 65-68; column: 3, line: 1-17; column: 4, line: 39-47).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-5, 7-9 & 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (# EP 1231245 A1) in view of Patterson et al. (# US 4732786).

Lee et al. discloses an ink jet image forming process and ink jet recording apparatus including a liquid holding part for holding a liquid therein and liquid ejecting part for ejecting the liquid fed from the liquid holding part ([0010]).

Lee differs from the claim of the present invention is that (1) the polymer has a structure represented by -COOA , wherein A is alkali metal, ammonium or an organic ammonium, and the surface pH of the recording medium or polyvalent metal ion, which insolubilized the polymer. (2) The polymer is a vinyl copolymer containing a unit composed of an acrylic monomer. (3) The recording medium has a porous ink-receiving layer, and the surface pH thereof is within a range of from 5.4 to 7.0 and which contains alumina hydrate. (4) The liquid composition contains at least two water-soluble polymers.

Patterson et al. teaches a liquid composition for forming a coating layer on an image recorded article formed on recording medium by ink jet recording method, which includes an aqueous medium and a more than one polymer, wherein polymer is selected from polysaccharide, polymer of acrylic acid, copolymer of methacrylic acid (which has a general formula of -COOH) (column: 3, line: 55-68; column: 4, line: 1-25) and polyvalent metal cationic compound (column: 4, line: 39-47), wherein the polymer is dissolved in the aqueous medium in such state as to be insolubilized by the surface pH of the recording medium (column: 3, line: 35-43) or polyvalent metal ion contained in the recording medium (column: 2, line: 65-68; column: 3, line: 1-17; column: 4, line: 39-47). They also disclose that the polymer is a vinyl copolymer-containing unit compound of an acrylic monomer (column: 3, line: 55-68). They also teach that the recording medium has a porous ink-receiving layer, and the surface pH thereof is within a range of from 4 to 8.0 and which contains alumina hydrate (column: 4, line: 50-60). They also teaches

that the liquid composition contains at least two water-soluble polymer (column: 3, line: 40-68; column: 4, line: 1-50).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the image forming process of Lee et al. by the aforementioned teaching of Patterson et al. in order to have a high quality printed image.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (# EP 1231245 A1) in view of Kurabayashi et al. (# US 5985975).

Lee et al. discloses all the limitation of the image forming process except that the liquid composition contains a surfactant having ethylene oxide.

Kurabayashi et al. teaches that to improve the fixing property, and preventing bleed liquid composition contains the cationic surfactant, which is ethylene oxide (column: 2, line: 35-55; column: 7, line: 5-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the image forming process of Lee et al. by the aforementioned teaching of Kurabayashi et al. in order to have a bleed free printed image with good fixing property, which increases the storage stability.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (# US 4732786) in view of Lee et al. (# EP 1231245 A1).

Patterson et al. discloses all the limitations of the liquid composition and image forming process except that an ink jet recording apparatus including a liquid holding part

for holding a liquid therein and liquid ejecting part for ejecting the liquid fed from the liquid holding part.

Lee et al. teaches that to get the high quality printed image, an ink jet recording apparatus including a liquid holding part for holding a liquid therein and liquid ejecting part for ejecting the liquid fed from the liquid holding part ([0010]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the inkjet apparatus of Patterson et al. by the aforementioned teaching of Lee et al. in order to have a fast and high quality printed image.

Allowable Subject Matter

7. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The absorption coefficient, $K\alpha_1$ from 0.025 seconds to 0.1 seconds in the Bristow method of the liquid composition into the recording medium is within a range of from 0.5 to 1.5 ($\text{ml.m}^{-2}.\text{msec}^{-1/2}$).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(1) Shirota et al. (# US 5792249) discloses an image recording method including the steps of coating a recording medium with reaction solution (liquid composition) (see Abstract; column: 7, line: 49-62) capable of destabilizing the dissolved or dispersed state of the coloring material in the ink in contact with the ink (see Abstract; column: 4, line: 15-40) and an ink containing a coloring material in a dissolve or dispersed state (dye) (column: 6, line: 64-67; column: 7, line: 1-10), and coating the ink on the recording medium by an inkjet method (column: 7, line: 60-67), wherein the reaction solution contains at least a polyvalent metal salt (multivalent ion) in an amount from 0.05 to 8.0 % by weight (column: 5, line: 5-25) and a nonionic polymer (polyvinyl alcohol) (column: 5, line: 48-61), and viscosity of the reaction solution is from 1 to 30 cps (column: 6, line: 40-45). They also disclose that the physical value of the liquid composition and ink composition is almost same (column: 6, line: 40-42; column: 7, line: 12-20).

(2) Koyano et al. (# US 2003/0064206 A1) discloses a set of an ink and reaction solution (pretreatment liquid) (see Abstract) for use in image recording in conjunction with ink containing a coloring material in a dissolve or dispersed state ([0161]-[0174]), the reaction solution destabilizing the dissolved or dispersed state of the coloring material in the ink contact with the ink. They also disclose that the reaction solution including polyvalent metal ion (salt) ([0116]) and organic solvent ([0131]-[0136]) and have a pH of 2 or higher ([0156]). They also disclose that the amount of polyvalent

metal salt is from 0.01 to 10% by weight (see Examples). They also disclose that the reaction solution further contains a strong acid ion ([0158]-[0159]) and a buffer ([0118]-[0122]). They also disclose that the pH of the reaction solution is 7 or lower ([0156]). They also disclose that the pH of the reaction solution is controlled by the controlling agent, wherein the controlling agent is selected from lithium hydroxide, sodium hydroxide, potassium hydroxide ([0157]). They also disclose that the ink jet recording apparatus including a coating roller for coating the reaction solution on a recording medium (element: 42, figure: 1,2), and an amount of the reaction solution applied on the recording medium is from 0.5 g/m² to 10 g/m² ([0124]).

(3) Davis et al. (# US 5695820) teaches that to get the uniform distribution of the reaction solution and ink composition, the reaction solution (treatment solution) (column: 3, line: 5-10) for use in image recording in conjunction with ink containing a coloring material in a dissolve or dispersed state (column: 3, line: 1-5; column: 6, line: 58-67), the reaction solution including polyvalent metal ion (salt) (column: 4, line: 1-33) and organic solvent (column: 7, line: 5-40) and wherein the amount of polyvalent metal salt is from 1 to 11% by weight more preferably 3 to 6 % by weight (column: 4, line: 39-42). They also disclose that the reaction solution further contains a strong acid ion (column: 6, line: 19-45) and a buffer (column: 7, line: 20-25).

(4) Takemoto (# US 6341854) discloses the ink jet recording method using two liquid, wherein reaction solution composition including polyvalent metal salt in an

amount of 0.1 to 40% by weight (column: 5, line: 10-35). They also discloses that the ink composition including pigment or dye as a colorant (column: 7, line: 10-40).

(5) Miyabayashi (# US 6538047) discloses the ink jet recording method using two liquid, wherein reaction solution composition including polyvalent metal salt (column: 18, line: 55-67) in an amount of 0.1 to 40% by weight (column: 19, line: 5-10); polyol, acid, buffer (column: 19, line: 30-55) and organic solvent (column: 20, line: 1-20). They also discloses that the ink composition including pigment or dye as a colorant (column: 9, line: 1-60).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manish S. Shah whose telephone number is (571) 272-2152. The examiner can normally be reached on 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manish S. Shah
Examiner
Art Unit 2853


MSS

5/14/04
